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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 661,433	09 13 2000	SABURO KAMIYA	107312	7860

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P.O. BOX 19928  
ALEXANDRIA, VA 22320

EXAMINER

TURNER, SAMUEL A

ART UNIT PAPER NUMBER

2877

DATE MAILED: 03 25 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/661,433

Applicant(s)

KAMIYA, SABURO

Examiner

Samuel A. Turner

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 9-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 and 9-12 is/are allowed.
- 6) ☒ Claim(s) 1-5 and 13-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3 March 2003 has been entered.

#### Rejections Under 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, and 13-28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Loopstra et al(WO 99/28790) in view of Kawashima et al(5,117,254).

Loopstra et al teach an exposure apparatus comprising an exposure source(LA), mask(MA), projection lens system(PL), wafer substrate(W), and stage(WH). The exposure system includes a first sensor system(40-46) which controls the focus of the projection system by measurement the axial position of the

substrate in relation to the projection lens system. A second sensor system includes an X-Y interferometer system (figure 4) which includes reflecting a beam from the stage (WH) and an inclined reflective surface (159) on the stage and a reflector (163) mounted to the projection optical system such that a second beam is reflected by the inclined reflector (159) to the mirror (163). See figures 5-8. Not taught is the use of a separate reference plate reflector mounted on the substrate stage.

Kawashima et al teach the use of a reference reflector mounted on the substrate stage of the exposure system with is used by the focus control (first sensor system). Kawashima further teaches that the reference reflector or the wafer surface can be used by the focus control.

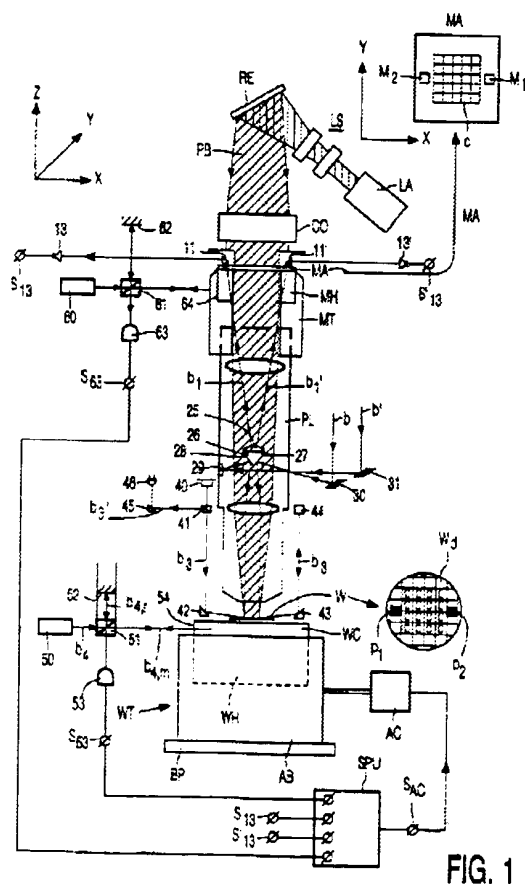


FIG. 1

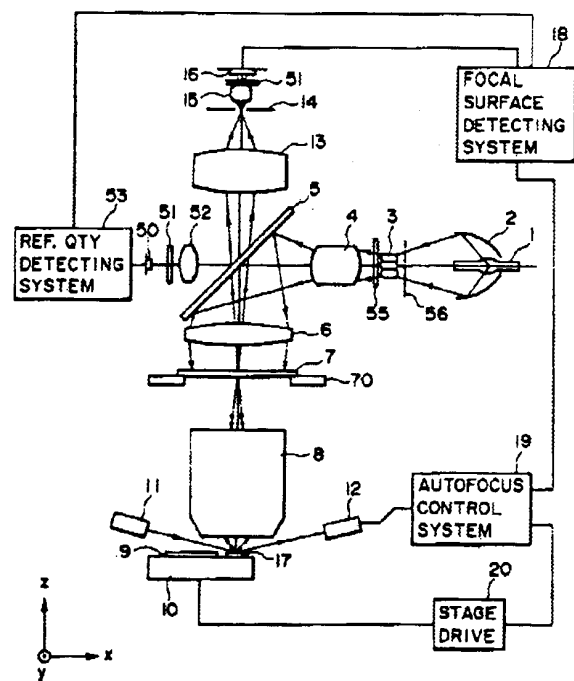


FIG. 1

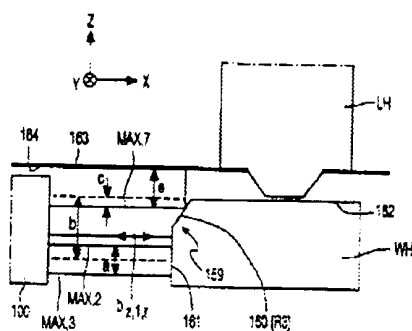
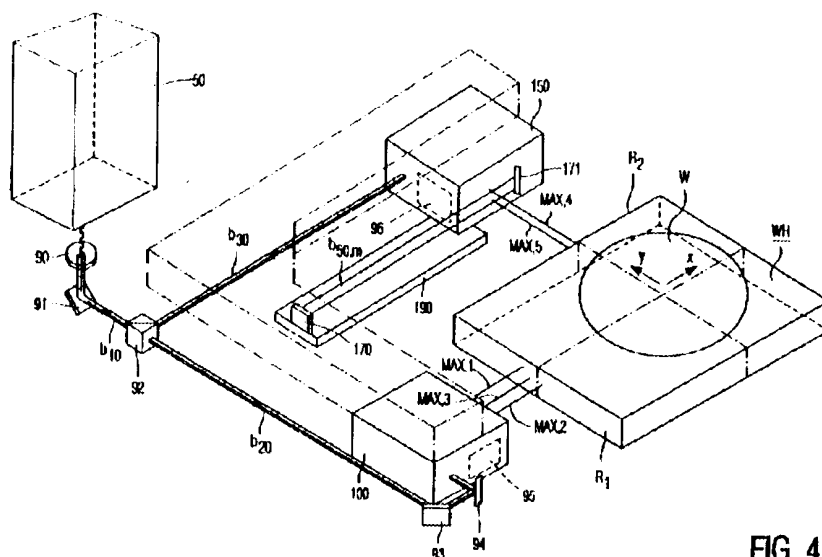


FIG. 5

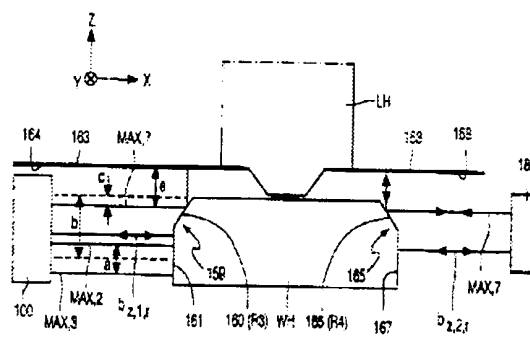


FIG. 6

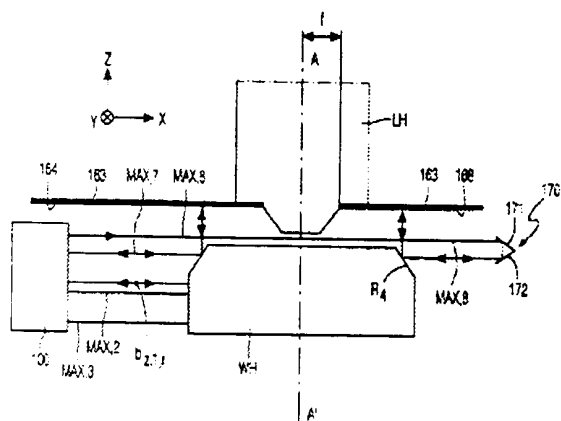


FIG. 7

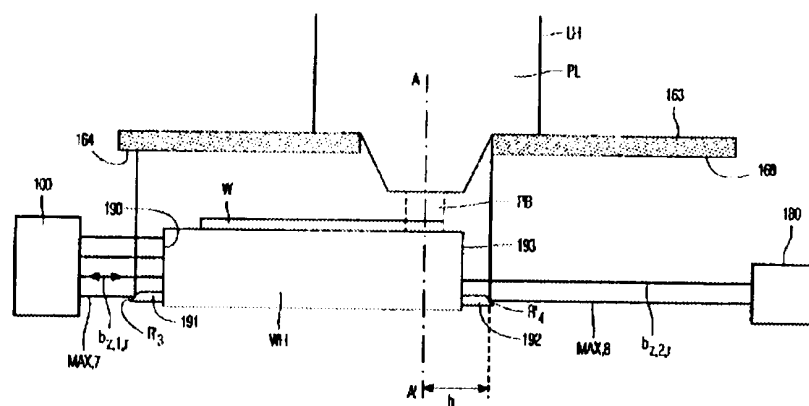


FIG. 8

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a reference reflector on the substrate stage for the first sensor system, the focus system, as taught by Kawashima et al. Clearly when the projection optical system is positioned over the reference reflector both the first and second sensor systems will be in a predetermined position.

With regard to claims 2, 3, and 17; while a position relationship is adjusted based on the positional information from the first and second sensors there is no means, element or structure to perform this claimed function. Thus the limitations are functional and do not further limit the claimed apparatus.

Claims 13-15, and 28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Loopstra et al(WO 99/28790).

Claims 13-15 and 28 are method claims, the only limitation of each "exposing a substrate to at least one pattern image" which is met by the known prior art. Please note that the structure of the apparatus claim from which each method claim depends does not further limit and method claimed.

### **Reasons for Allowability**

Claims 6, and 9-12 are allowed in view of the prior art of record.

These claims include a correction system which provides a positive structural limitation which links the position measuring system, moving system, and the correction system.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Turner whose telephone number is **(703) 308-4803**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font, can be reached on (703) 308-4881.

The fax phone number for this Group is (703) 308-7722. The faxing of papers related to this application must conform with the notice published in the Official Gazette, 1096 O.G. 30 (15 November 1989). The Group receptionist telephone number is (703) 308-0956.

Any inquiry of a technical nature regarding reissues, petitions, and terminal disclaimers should be directed to Ed Glick whose telephone number is (703) 308-4858, Hien Phan whose telephone number is (703) 308-7502, or Ed Westin whose telephone number is (703) 308-4823.

Any other inquiry of a technical nature, and all inquiries of a general nature including those relating to the status of this application or any patent term adjustment should be directed to TC2800 Customer Service Office whose telephone number is (703) 306-3329.



Samuel A. Turner  
Primary Examiner  
Art Unit 2877

SAT  
March 20, 2003